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By J. H. GURNEY, F.Z.S.

OWING to the war the usual number of Norfolk notes did not come to hand in 1915, many observers having gone to the front; moreover, the military restrictions on certain parts of the coast impeded the making of observations.

The Spring Migration.—April opened fine and dusty. Colonel Irby saw a Swallow on the 9th; on the 11th the Woodpecker was loudly vibrating; the Redshank was at Dunston on the 12th, and by the 13th there were Partridges' eggs at Ditchingham (W. Carr). Statistics about the emigration of birds from our shores in March are more wanted than dates of arrivals in April. Thousands of birds must quit Norfolk, or at least pass over it, about that time, but we really know exceedingly little about their movements.

For the first time the Breydon watcher's note-book does not contain a single reference to Spoonbills, but the cannon practice which has gone on in the vicinity is enough to account for their favourite tidal broad being forsaken by these annual visitants.

The Breeding Season.—Between the end of the spring migration and the beginning of the autumnal arrivals there is a period of inactivity in bird-life. For the space of ten weeks no migration goes on, if we except the departure of the Swift and the adult Cuckoo.

But this is the bird-nester's busy time, and the period when

so many life-studies in photography have been made, with great advantage to naturalists.

This year we had the presence of a Brambling in the middle of summer, seen by Mr. Vincent on June 18th, as will be mentioned presently.

The same observer detected a couple of Nyroca Ducks on July 14th, which is an exceedingly late date.

The Cormorants, which were so beautifully photographed by Miss Turner last year, again came to Lord Hastings' lake, but only on a passing visit.

The first was seen by the keeper on May 23rd, but it only stayed a short time, being probably frightened by a camp of Yeomanry in the park.

The Autumn Migration.—September was too fine for observations, besides which there were very few naturalists left to make them. When the weather is open rare birds pass over the Norfolk and Suffolk coast-line without stopping. Mist and rain, which delay them, is the collector's weather.

Each year tends to confirm the belief that migratory birds which come to the coast of Norfolk in autumn with a west wind, are delayed birds. Naturally they are much more in evidence than those which cross the North Sea at night with an east or a north-east wind. These latter come and are gone again before the naturalist has been made aware of their presence, except such portion of them as elect to make Norfolk woods and fields their halting-place.

Weather conditions being equal, different altitudes suit different migrants. Rooks, Grey Crows, and Starlings all fly pretty high, Chaffinches or any small birds, as a rule, lower, birds of prey the highest of all. The steady, purposeful, onward flight of the Starling is in great contrast to the Thrush's wavering flight. Skylarks vary, but as a rule travel very low over the sea, as may be seen from the shore at Overstrand, even adapting their course to the undulations of the waves. From 4 a.m. to 6 a.m. would be a good time to look for migrants arriving, but unfortunately by the end of September the light is insufficient for identifying small birds before six o'clock, unless they be in a line with the rising sun.

That by far the greater number of birds travel by night is



well known, and one reason for it has been supposed to be to escape the attacks of other and larger birds; but this is an altogether insufficient explanation of the matter. A far better solution of it has been assigned by Mr. W. E. Clarke, which is that the day-time is the period during which birds take their food. At night they are not accustomed to require it, and consequently their powers of abstinence are greater in the hours of darkness ('Studies in Bird Migration,' i, p. 22).

Occasionally migrants come in very tired, but for the most part they are wonderfully little exhausted, according to my experience. Crossing the North Sea would be a journey of about four hundred miles, but it is not likely that the majority start from the Dutch or German coast.

Their flight may begin several degrees further inland than that, and yet when they reach England they may be seen still going on.

Sometimes large flocks of Chaffinches, even as many as five hundred together (before they have broken up), may be seen on an oat- or barley-stubble near Cromer, in October, so close to the cliff as to suggest that they had come over during the night.

But this is less remarkable than the number of Thrushes to be flushed in that month in turnip-fields. The Song-Thrush must receive a vast accession of numbers in October and the early part of November, for in those months the well-grown fields of swedes and mangold near Cromer, and all along Norfolk's rounded coast, often swarm with them, mingled with Blackbirds and a sprinkling of Redwings.

Migration is a fascinating subject, but there are several phases of it which we have not got to the bottom of by a long way. It is a study in which speculation is easy, but facts are by no means so easy to come by, and when attained sometimes quite reverse expectation. One thing which is unaccountable is that so little should be seen, especially in Norfolk and on the east coast, of the many migratory birds on their return journey northwards and eastwards in March and April. Where are then the Thrushes and Blackbirds, of which such vast numbers were to be seen in October?

Where are the hosts of Skylarks, Redwings, Starlings, Linnets, Bramblings, and Chaffinches? There can be but three explanations. Either they are dead—or they pass over Norfolk

at night and are not seen—or they return by some other and more eastern route.

Rough-legged Buzzards.—The migration of Rough-legged Buzzards to Norfolk and Suffolk was the largest there has been for several years, and it extended to other counties. In Norfolk at least twelve were trapped or shot. It seems criminal to destroy these splendid birds, but the zeal of our game-keepers, even when they are under their masters' orders, is not to be restrained. As a matter of fact Buzzards are not active enough to catch a Partridge or a Pheasant, unless already wounded, in which case it is best destroyed.

As usual, the Rough-legged Buzzard's chief food was Rabbits, a partiality well known to Willughby. Willughby, however, did not distinguish between this species and the Common Buzzard ('Ornithology,' pp. 21, 71), nor was it until 1776 that Pennant, in an appendix to his 'British Zoology' (ii, p. 623), recognised the Rough-legged Buzzard as a distinct British species.

In the neighbourhood of Winterton, Mr. E. C. Saunders informs me these birds killed a great many Rabbits, and here they were accused by the warreners of taking Rabbits out of traps. Mr. Saunders was told that one man had found as many as four trapped bunnies thus mangled in a morning.

Two of the Buzzards were announced as early as September, five in October, and about the same number in November. Only one was reported in December; yet it seems likely that a few stragglers came over even later than this, for several occurred after Christmas, which ought to come into next year's Report.

The sexes seem to have been about equally divided. Most of these Buzzards were in immature plumage, but two of the later ones were well advanced, especially a very fine bird, with closely barred thighs, received by Mr. Gunn.

The Absence of Rarities.—The only rarities worth calling attention to were the Nyroca Ducks in April and July, a Stork in May, the Ruddy Sheld-Ducks in November (probably escaped), and Mr. Saunders' Black-breasted Dipper in the same month. Yellow-browed Warblers are recorded to have visited Suffolk and Lincolnshire and Kent, but none were noted in Norfolk.

JANUARY.

10th.—A drake Wigeon,† fourteen years old, died (E. Knight).

18th.—Nine Tufted Ducks at Hempstead (Knight).

28th.—A well-marked drake Pintail × Mallard hybrid †, shot at flight by Captain Blofeld at Hoveton, had all the appearance of being a wild bird. None had been seen before on the Broad.

FEBRUARY.

25th.—Merlin † and Green Sandpiper at Keswick. Bittern booming on the Broads (M. C. Bird).

27th.—A Mistletoe Thrush's nest † with two eggs at Hethel.

MARCH.

13th.—W., 3. Grey Crows going south at Overstrand, very high (W. Burdett).

14th.—W., 2. Rooks coming over at Yarmouth in thousands, and flying due west (A. Patterson).

17th.—In a parish some four miles from the coast great flocks of Rooks were observed by Mr. Vincent to be flying south-east; also flocks of Starlings, which were coming from the east, and great numbers of Fieldfares. According to my register there was hardly any wind, but a change of temperature which next day mantled the ground with 4 inches of snow, the cause, I take it, of this movement. The snow covered the fallen acorns, and Mr. Vincent at once noticed that in consequence the Wood Pigeons were turning their attentions to Ivy-berries, on which some Jays were also feeding.

23rd.—E., 3. Many straggling groups of Grey Crows, Rooks, and Jackdaws going east over Northrepps (W. Burdett). Some people think that these birds are exclusively day-migrants; but I doubt that, partly from having found dead ones on the shore, presumed to have fallen into the sea in the night. Moreover, those which leave England in the afternoon would not arrive on the other side of the North Sea while it was still light, and must therefore make land by night.

26th.—N.W., 2. Sleet falling. At 5.45 a.m. Mr. Vincent saw a flock of Bramblings going W.N.W., and in the course of

the morning five more flocks, averaging from fifty to a hundred birds.

APRIL.

12th.—S.E., 3. On this date a White-eyed or Nyroca drake was observed on one of the protected Broads by the head keeper, who in this instance is a very accurate observer. He remarked, as he had done on a previous occasion, that this species is fonder of the reeds than the Tufted Duck, which keeps more in the open water, an observation which we were afterwards able to confirm.

15th.—S.W., 2. In company with Dr. S. K. Long I had an opportunity of seeing the Nyroca † mentioned on the 12th, and of comparing its carriage and appearance with some Tufted Ducks, of which there were about thirty on the Broad. On the wing the Nyroca struck us both as being distinctly smaller than the Tufted Ducks; the plumage was also much redder, but the white chin-spot was not visible without a glass. This Duck was still on the Broad on the 21st, but the keeper could not see that it had a companion, and in May it finally disappeared. There was also a nice flock of eight Golden-eye Ducks † on the Broad. They seem to be fond of this Broad, for the observer before mentioned, who lives on the spot, reckoned that there were sixty at the end of March. Coots are also very plentiful here, and the same naturalist tells me that in November and December he often hears them coming in from the sea at night. For the description of a successful Coot shoot, see 'Norwich Nat. Tr.,' vii, p. 267.

[Two White-naped Cranes (*Grus leucauchen*) thought to have flown from the Duke of Bedford's park at Woburn, appeared on the Earl of Leicester's lake at Holkam.]

16th.—A Long-eared Owl's nest † on the ground at Potter-Heigham, see 'Norwich Nat. Tr.' (vol. x, p. 38), but such a situation is less uncommon than is generally supposed. In 1899 the Rev. M. C. Bird met with an instance in this same neighbourhood, and other cases might be cited. It was during this month that Mr. Bird found a Long-eared Owl breeding in an old Wood-Pigeon's nest, which I only mention because on a subsequent visit there were thirteen dead mice in the nest.

With regard to the nest at Potter-Heigham, which held five eggs, it was in a small plantation on the marsh, in a growth of brambles, which arched it over so that it was cleverly concealed.



LONG-EARED OWLS.

Its welfare was subsequently watched over by Miss E. L. Turner, who records the following dates of hatching :

April 30th.—First egg.

May 2nd.—Second egg.

May 5th.—Third egg.

The other two eggs were bad.

In the photograph of the young Owlets in their nest, done by Miss Turner, the ear-tufts can be observed already showing ; indeed, they were remarked by Miss Turner when the young were two days old.

29th.—A nest † of the Little Owl at Great Melton, situated in the highest arm of a large oak, contained six eggs (G. Deacon). This was the same hole in which some schoolboys found Barn-Owl's eggs † in 1914. This year they discovered that Little

Owls were using it, but had laid so far down the hole that their eggs were hardly to be reached.

Going a few days afterwards with Dr. Deacon to investigate, we soon found the right tree, out of which the Little Owl slipped away with an undulating flight on our approach. She left behind her several pellets, which were collected, and were afterwards soaked.

They contained seven skulls of Greenfinches, or perhaps Sparrows, four small Rats, six Shrews, one Field-Mouse, and the remains of one or two Beetles.

MAY.

2nd.—N., 2. A rush of Willow-Warblers reported by Mr. C. B. Ticehurst in the north-west part of Norfolk, the country lanes around Wells and Brancaster being full of them, with a few Greater Whitethroats.

On the same day three Wood-Warblers were identified by Miss Turner in a small plantation at Whiteslea.

18th.—A Dabchick's nest on Bolwick pond. Mrs. Wathen informs me that they have nested there for some years, and are double-brooded. In due course the young were hatched, and in September the old birds were sitting again, and hatched off a second brood on the 4th (M. L. Wathen). The nest was not so large as the one you figured in 1906 ('Zool.,' p. 129), but the fabric is often bigger than a superficial examination would lead one to suppose, although very flat. The eggs, white when laid, soon become stained; they are generally invisible from the bank.

20th.—A fine adult Gannet, † which had swallowed a hook, caught off Runton (F. H. Barclay).

It did very well for a few weeks, but fish were scarce, so it was packed off to the Zoological Gardens, where, being fed partly on meat, it soon looked very miserable, and having developed mycosis, died.

During this month a Stork and an Osprey were seen by Mr. Vincent, but the dates were not put down. Sir Digby Pigott notes a Woodcock's nest with four eggs on Sculthorpe Marsh. Although this species always breeds, protection does not seem to make its nests any commoner.

JUNE.

3rd.—A Reed-Warbler's nest † on the river at Keswick (C. J. G.), where possibly one or two breed every year. Most of the nest-building seems to be done by one bird, but it is impossible to say of which sex, as both are in attendance.

8th.—Temperature $89\frac{1}{2}^{\circ}$ F. The hottest day registered by Mr. A. W. Preston in Norfolk, for June, in thirty-two years.

18th.—A cock Brambling seen in a small plantation near Hickling village by Mr. Vincent is an occurrence late enough to suggest breeding. We certainly have no record of one being seen so late before, but no hen was detected. It was not seen again.

JULY.

2nd.—A Common Linnet's nest † on the side of a house at Keswick at the unusual elevation of 21 ft. This bird has become very common here in summer. Two other pairs chose for their domicile plants of the Garden Lupin, which was going to the other extreme, but they were large plants.

14th.—Two Gadwalls and a couple of Nyroca Ducks, apparently both males, detected by Mr. Vincent on the same Broad where we saw one in April. They are believed to have only stayed two days. This seems to be the solitary record of the presence of Nyrocas in England in summer, although it is very likely they have been on the Norfolk Broads before, without being recognised.

A hundred and fifty years ago the Wigeon, Pintail, Nyroca, and Red-crested Pochard may all have been breeders in very small numbers in the wilderness of reeds and swamps, which were more extensive in Norfolk then than now, without any sportsman or reed-cutter taking note of the fact. But it is not very likely that the Scoter ever nested on our Broads.

22nd.—The contents of a Sparrow Hawk's nest, received with the nest, to-day from Essex were: 4 Blackbirds, 4 Thrushes, 5 young Pheasants, 1 Red-legged Partridge nestling, 1 Starling, 1 Hedge-Accentor, 1 Chaffinch, 1 bird doubtful. This may be compared with the dietary of one for Norfolk ('Zool.,' 1890, p. 56). It is remarkable how cleanly the Sparrow Hawk can pick a skeleton.

(To be concluded.)

A DILETTANTE IN THE CAUCASUS.

BY CAPTAIN MALCOLM BURR, D.Sc., F.L.S., F.Z.S.

THERE are few regions on the earth that offer such a variety of absorbing interest as the Caucasus. The biologist and the geologist, the meteorologist, ethnographer and geographer, the student of politics, the soldier, the mining engineer, sportsman and man of business, the artist and the mere tourist, all will find there enough to satisfy their most exorbitant demands.

The Natural History of the Caucasus has received considerable attention from a number of eminent men of science, and the general lines, and in some cases the details, of the geology, botany, and zoology are fairly well known. But the problems are so varied and so intricate that the Caucasus will remain for many years a happy hunting-ground for all inquirers.

Diversity is its greatest charm; the main range extends from the corner of the Sea of Azov in the north-west to the Caspian Sea in the east, forming a mighty barrier, spread like a curtain between Europe and Asia. This crest, with the two famous mountains of Elbruz and Kazbek, which put the Alps to shame, contains more than half-a-dozen peaks higher than Mt. Blanc. In it occur a number of interesting vertebrates, Bear and Boar, Maral Deer, four peculiar species of *Capra*, the grand "Zubr" or Bison, the Chamois, Wolf, Lynx, Wild Cat, and Leopard. Properly speaking, the name Caucasus is applied to this main range only, but practically and politically it covers a far wider area, with a great variety of physical features. The great corn-growing plains of the Kuban and Ter provinces on the north of the crest have much in common with the steppes of Southern Russia. Here the Saiga Antelope has not yet disappeared. To the south of the watershed, in the Transcaucasus, we have the range of the Maly Kavkaz, or Lesser Caucasus, nearly parallel to the main range, from which it is separated by the valleys of the Rion and Kura. Ararat and the

mountains of the northern part of Asia Minor belong geographically to the same district; on the east, the heights of Karabagh, and in the extreme east, south, the uplands of Talysh, where the Tiger still lingers, have a frankly Asiatic character, but form part of the Caucasus. The western portion, corresponding roughly to the government of Kutais, circuit of Batum, and Black Sea littoral, enjoys a moist and warm climate, thanks to which a most exuberant vegetation flourishes. As we go east the climate becomes drier and drier, until on the burning plains of Azerbaidjan we have a mirror of the great steppes and deserts of Central Asia.

The traveller from Europe generally arrives at Batum, but if he comes from Russia he usually leaves the train at Vladikavkaz and drives to Tiflis over the Georgian Military Road. This is one of the finest mountain drives in the world, unfortunately little visited by English travellers. It has been my good fortune to drive over this pass four times, once in August, 1912, and three times in June-July, 1915. On every occasion, unfortunately, I had no choice but to motor; it is preferable to ride, or take a carriage and travel more slowly, the better to appreciate the beauty of the scenery.

On approaching from Vladikavkaz the traveller is abruptly plunged from the plains into the narrow rift of the Terek; the calcareous rocks are thrown into a razor-edge escarpment, dipping at about 45° to the north, by the uplift of Kazbek. Crumpled and contorted shales soon replace the limestone rocks; the vertical joints give them a real saw-edge against the sky, while fluted masses of basaltic intrusions stand out boldly against the vertical walls. In the milder part of the gorge, before the stantsia of Kobi, Swallows and House-Martins flit about. I saw three Goldfinches (*shchegól* in Russian, *Carduelis carduelis carduelis* L., or *C. carduelis brevirostris*, Zarudny). But soon the traveller enters the forbidding Gorge of Darial, where it seems as though all life ceases. The naked rocks rise sheer on either side, without trees, without scrub, while the Terek roars and boils, smashing over the stones so violently that not even Trout can live in it. The effect is oppressive, and the crushing sensation was as powerful on my fourth visit as on my first. At one spot an isolated rock stands like a buttress in the

gorge. On it are perched a few ruins, attributed by tradition, like all ancient remains in the Caucasus, to the great Empress Tamara, after whom half the Georgian girls are named; they are, however, much older. The first fort was built here by the Emperor Vakhtang Gurgaslan (A.D. 446-499), and restored by David the Renewer (A.D. 1089-1125).

It is almost with relief that one emerges in the wider valley between Darial and Kazbek. Here a few Rock-Doves are always to be seen, and I caught a glimpse of one Wall-Creeper (*Tichodroma muraria*, L.). Here *Emberiza cia par*, Hartert, is first noticeably common; this Bunting (*Ovsianka* in Russian) is numerous from Darial up to an altitude of 7000 ft. Suddenly, past a bend in the road, we reach the stantsia of Kazbek, commanding a magnificent view of the famous mountain. The peak reaches an altitude of 16,546 ft., far above the heads of his neighbours. The two glaciers of Gerget and Devdorak are not visible from the road, but are easily accessible by special excursion. The first attempt to reach the summit was undertaken by Fr. Parrot in 1811; he reached an altitude of 13,863 ft., when he was driven back by storms. In 1844 Dr. Kolenati succeeded in reaching 14,547 ft., and the peak finally was overcome by three Englishmen—Messrs. Freshfield, Tucker, and Moore—in July, 1868.

There are not a great number of birds in the neighbourhood of Kazbek. I saw one Eagle and a pair of small Hawks, which I cannot attempt to name, and a single Rock-Thrush, which was, I think, *Monticola cyaneus*, L., which is the less common species, and not the more frequent *M. saxatilis*, L. Black Redstarts are common, and the Chough (*Pyrrhocorax pyrrhocorax*, L.) plays the part of Jackdaws.

But the pride of these mountains is the *Tur*. This is the Russian name for four species of Wild Goat which are peculiar to the main range of the Caucasus. These are: *Capra cylindricornis*, Blyth (= *pallassii*, Rouiller), which ranges from Daghestan to Mt. Elbruz; *C. caucasicus*, Güld., an intermediate form occurring in the central Caucasus; *C. sewerzowi*, Menzb. (= *caucasica*, Lyd.), peculiar to the western portion of the range; and *C. dinniki*, Sat., a rare and little-known species occurring in the mountainous parts of the Kuban province. They differ

mainly in the form of the horns, which sometimes are very massive. I have seen some very fine heads in Tiflis. It is the first mentioned species which occurs in the neighbourhood of Kazbek. A keen native sportsman, Levan by name, undertook to show me some Tur in their native haunts. Accordingly we started pretty early in the morning, well laden against all contingencies. We walked some five versts down the valley, and then sat by the path and scanned the rocks above with a telescope by the hour. At length the practised eye of my companion detected a minute reddish speck in the shadow of a projecting rock, almost at the summit of the mountain called Nakherete. My eyes are pretty good, but I had to take Levan's word for it. The Tur rest all day, sleeping or dozing on inaccessible crags. Towards the evening they come down to lower altitudes to graze, returning at dawn to their rocky fastnesses. We accordingly set out to climb to meet them, with the idea of ambushing them on the descent. The climb was laborious, but glorious, up the face of the cliff; the foothold was precarious; a dense carpet of aromatic herbs made the air fragrant as our boots crushed them. The purity of the air and the wonderful scenery were ample reward for the great fatigue of the climb, which was particularly trying in the rarefied air after six months of soft town-life, especially with a rifle, bandolier, field-glasses, and knapsack. At length, about four in the afternoon, we lay *cachés* behind a minor ridge, and between the chinks of the rock my eyes were gladdened by the sight of a flock of seven Tur slowly working their way downwards. The chief was a ram of about three years, with very fair horns; there were two a little younger, and the rest were kids. They stopped to snatch a bite of sweet grass here and there, and all rested a few minutes to drink from a rivulet trickling from a patch of melting snow. The kids were frisking and gambolling as prettily as lambs, and I could scarcely bring myself to break upon their peace by pulling the trigger of the old rifle that Levan had lent me. But when they had approached to about four hundred paces, I aimed at the oldest ram and pulled. The report re-echoed through the rocks and crags around, and down the gorge, while the startled animals bolted in all directions. The bullet grazed the shoulder of the ram, but he paid no

attention to the wound, and in a moment was out of sight. These animals are extraordinarily strong, and specimens are sometimes killed carrying the scars of very severe wounds from which they have entirely recovered. Another bullet killed one of the younger males, entering at the left shoulder and flattening itself against the off hind femur. A pair of startled kids bounded up to the rock where we lay hid, and stood in astonishment at the unfamiliar creatures they saw. To Levan they represented meat, wool, and roubles, and I had some difficulty in preventing murder from being committed. The dead Tur was a heavy burden, and the return journey with the carcass down the unending talus was most exhausting, completely falsifying the old saying, "*Facilis descensus Averni.*" The *labor* and the *opus* were worse on the way down. We were utterly unable to carry the heavy body home, and so buried it in a pile of snow by the side of the path. A few rags, used to clean the rifles, were stuck on to the body, for the scent of the powder is a perfect protection against prowling Foxes and other wild marauders. The next evening I tasted my first *shashlyk* of Tur, and a more tender morsel could not be put before a king.

The wool of the Tur is extremely soft, and highly prized by the natives; I was offered a *bashlyk*, or head-dress, of Tur wool for 40 roubles, the price of a common cloth one being 2½ roubles; a few weeks later this *bashlyk* was actually sold for that price. The Tur represents clothing, food, and roubles to the ruthless mountaineers, who shoot indiscriminately, regardless of sex or season; previously, thanks to their activity and extreme wariness, the animals escaped annihilation, but the possession by the mountaineers of modern firearms is rapidly thinning their numbers. Dinnik has expressed the fear that within twenty years these beautiful and interesting creatures will be on the edge of extinction.

At the highest point of our climb after the Tur, we could hear the whistle of the "Mountain Turkey" (*Tetraogallus caucasicus*, Pall.), but though we hunted for it and eagerly scanned the rocks with a telescope, we were not lucky enough to catch sight of one.

The scenery above Kazbek past Kobi to the pass is fine; Mount Zion is particularly remarkable, terminating in a massive

bunch of needles, which make a striking outline against the sky. At every bend in the valley there is a village, or *aul*, on the projecting spur, with an old watch-tower, so that signals could be telegraphed right through the pass. At Kobi there is a *narzan*, or chalybeate spring; the water is abundant and cold, clear, ferruginous, and aerated, tasting like that of Spa. Doubtless one day there will be a *kurort* here. In June there is still plenty of snow melting in these treeless alpine slopes and meadows. Grey Crows (*Corvus cornix cornix*, *séraia voróna* in Russian), Chough (*khushitsa*), Turtle Doves, Black Redstarts (*Ruticilla ochrurus*, Gm.), are common; and *Montifringilla alpicola* (Pall.), Wagtails, Grey Shrikes, and Wheatears are also numerous. Of the latter (*Kámenka*), there are ten subspecies in the Caucasus, so I hesitate to identify them; very likely they were *Saxicola ænanthe rostrata*, Hempr. and Ehrehb., "the commonest bird in the district," according to Satunin.

Over the watershed the deep valley of the White Aragua is as fine as the Gorge of Darial, but of a different type: the descent into the valley at Mlety was very abrupt, and the southern vegetation rapidly becomes denser; the milder air on the southern slope is at once noticeable; the hillsides are covered with vegetation, and assiduously cultivated to a considerable altitude, in spite of the apparently impossible steepness. In the lower reaches the scenery is much milder; well-wooded hills replace the bold and naked crags, and the Aragua is a meeker stream than the turbulent Terek. The road by Passanaur and Ananur is particularly thickly wooded; here the local Jay, *Garrulus krynickyi*, Kal. (*sóika*), is common; Magpies, *Pica pica pica* (*soróka*), and Turtle Doves, *Turtur turtur* (*gorlinka*), are abundant; Swifts, *Cypselus apus* (*strizh*), are numerous; but I did not see *C. melba*. I saw one small Sandpiper, probably *Actitis hypoleucos*. In the gardens of every inn there is a young Bear chained up. There are two forms of the Brown Bear in the Caucasus—*Ursus arctos typicus*, L., and *U. arctos meridionalis*, Midd. According to Dinnik there is a noticeable difference in their habits, the typical form preferring the forests, rarely appearing in the alpine meadows or among the higher crags, while the smaller race in summer is often met with at great

altitudes, even up to the snow-line. The typical form sometimes occurs in the alpine meadows in the early part of the summer, but later in the season goes down to the forests to collect the ripening fruits—apples, plums, pears, and raspberries—which are grateful to his sweet tooth.

At Ananur there are the ruins of a fine old castle; it was built by the Georgian *eristav*, or governor, in 1704. Thirty-five years later there were bloody scenes here: the *eristav* of Ksan, who had some quarrel with the men of the Aragva, enlisted the help of the Lesghians, and attacked Ananur; the *eristav*—Bardzim—shut himself in, but, after an obstinate struggle, the invaders carried the day, and killed Bardzim, and exterminated his family root and branch.

Beyond Ananur the country opens out into a green and smiling hilly district, recalling parts of England. But for the glimpse of a picturesque native with a buffalo, or of a team of sixteen oxen ploughing, the traveller could imagine himself in parts of Kent or Hereford. In this district, from Ananur past Dushet to Mtskheth, Kestrels, Jays, Grey Shrikes, and Hoopoes (*udol*) are common; the only places where I saw Blackbirds were near Mlety and near Ananur; these were probably *Merula uerula aterrima*, Mad., as the typical form is said to occur only in winter. The Aragva joins the Kura at Mtskheth, the ancient capital of the Georgian tsars, and here the road turns sharply to the west, and follows the Kura to Tiflis. Along this sun-baked valley, many species of birds make use of the telegraph wires as a convenient perch; grateful ornithologists should erect a statue to their inventor. Turtle-doves are not too big to balance on this slender foothold, but the blatant Roller (*sivo*-, or *sizovoronka*), *Coracias garrulus caucasicus*, has some difficulty in keeping his balance. Eagles, of course, cannot manage it, but I saw a pair (probably *Aquila fulva* or *A. imperialis*) effect a compromise near Passanaur, by sitting on the poles, which is much the same thing. The Bee-eater (*shchtúrka*), *Merops apiaster*, L., is particularly fond of this strategic position, which gives him a good view round for hawking passing insects, after which he springs with a singularly graceful dive; these are very elegant birds, but it is very noticeable how the brilliant coloration pales in the dazzling sunlight, so that they often

appear dull and unnoticeable. But the equally brilliant Roller is very conspicuous; his gorgeous uniform, in so big a bird, and his loud and noisy chatter like that of a magpie, render him very prominent.

Shrikes (*sorokoput*) are common. The Grey Shrike was an unfamiliar bird to me, and when I first saw him on the wing I was quite puzzled, and could not make out what this handsome fellow was, with his strikingly contrasted black and white plumage, until I saw them settle on the telegraph wires. There are five species of Grey Shrike in the Caucasus; two are winter forms, a third is a rarity, occasionally occurring in the Eastern Caucasus, and so by a process of elimination we arrive at the conclusion that the birds which are common on the Georgian Road must be *Lanius minor*, Gm. In the lower reaches of the Aragva I noticed the local form of the common Butcher-bird (*Enneoctonus collurio kobylini*, But.). The typical form occurs in the steppes of the Northern Caucasus.

The Golden Oriole is fairly common in the Transcaucasus; I heard his very cheerful and musical whistle in a garden at Dushet, and at Geok Tapa, where I saw a pair mobbing a Kestrel; their brilliant plumage is lost in the blazing sunlight. The Russians call them *Ívolga*, and are very fond of the pure liquid note; it is common in Novgorod Government, and the typical form extends from the north right through the Caucasus, where it ranges up to an altitude of 6500 ft.; it has even been known to nest at an altitude of 7000 ft. It is curious that so hardy and widely spread a bird should be so rare a visitor to our shores; it would make a very handsome addition to our list of commoner birds, but it receives the usual welcome when it does take it into its head to cross the Channel.

Kestrels are extremely common, both *Tinnunculus tinnunculus* and *Tinnunculus naumanni*, Fleischer (= *cenchrus*, Bog.); the Russians call them *pustelga*, and they are practically a domestic bird in the Caucasus, being as much at home among the houses as sparrows, pigeons, or starlings. At Tiflis and at Kislovodsk they were constantly flying round the buildings and sitting preening themselves on the telephone wires; at Tiflis a pair was nesting in a gutter just over my window, and there was a fine chorus from the greedy youngsters when the parents

brought them their dinner. Below Dushet I saw a Hawk that was quite unfamiliar to me. He flew with a constant and regular flapping of his short, broad wings, until he skimmed close over the ground, at a height of only a foot or two. I could not detect his general colour nor the angle of his wings.

At Dushet I caught a glimpse of a Greenfinch (*zelenushka*), *Chloris chloris*, L., which occurs throughout the Caucasus, but is commoner near the shores of the Black Sea. There are several species of Larks (*zhavarinki*) in the valley of the Kura; the commonest were *Melanocorypha calandra*, L., and *Galerida cristata caucasica*, Tacz. At Mtskheth I saw the first Starling (*skvoréts*). The Starling is the joy of the specialist, as there are no less than nine subspecies in the Caucasus. The typical form is only a winter migrant; the Caucasian Starling occurs in the northern Caucasus and eastern Transcaucasus. Satunin's Starling occurs also in the Transcaucasus, and the Purple Starling in the West Caucasus and region of Kars; the Crimean Starling is found in the north-western part of the Kuban province. Menzbier's Starling winters in the Transcaucasus; *Sturnus vulgaris intermedius*, Praz., has been recorded from the Government of Kutais, and Jitkov's Starling is a winter visitor. Near Kobi, I caught a glimpse of *Pastor roseus*.

Near Mtskheth I saw a pair of Egyptian Vultures, *Neophron perchopterus*, L., (*sterviatnik*), sitting on the ground by the roadside, and I caught a glimpse of the Grey Vulture, *Gyps fulvus*, L., (*sip.*).

Eighteen versts from Mtskheth brings us to Tiflis. The spring of 1915 had been so unusually wet, owing to the heavy fall of late snow on the mountains to the east, that the hills round the town were still green in the middle of June, by which time, as a rule, they are burnt brown. For eight days after my arrival in Tiflis rain fell every day—usually all day; this was considered most unusual. It was a bad sign that the clouds came, not from Europe nor from the mountains on the Georgian Road, but from the wine-growing district of Kakheti, and it is a local saying that rain from Kakheti lasts many days. This is chiefly noticeable, it seems, from the fact that rain from Kakheti is a relatively rare phenomenon. It was certainly a surprise to me to see heavy clouds blowing up from the eastern steppes,

which I had always associated with a dry and burnt climate. However, when it stops it stops, which is a great advantage. I had occasion to go westwards from Tiflis, and near the shores of the Black Sea the rain is really bad; in fact, Batum, in particular, is notorious for its rainy climate, which has earned it an unenviable nickname. I had to face a lot more rain before I reached the blessed haven of a blazing sun.

Travelling in the Transcaucasus Railway was not the height of comfort, at all events, west of Tiflis. There were no sleeping-cars and no linen available; it was only by a lucky chance that room to lie down could be secured, and the heat was oppressive. It was also noticeable that stops at stations at mealtimes were limited to five minutes; the times of arrival and departure were inconvenient, and it seemed to me that this was specially arranged, with a fiendish ingenuity, with the express object of annoying me. I had occasion twice to go to Kutais, an important town, centre of a Government, and yet it is off the main line. It is necessary to change at Rion, and then spend an hour on a branch line. All trains contrive to stop at Rion at an impossible hour of the night, and about an hour is lost there waiting; so it is evident that a journey to or from Kutais involves a sleepless night. But it is worth it, as Kutais is an interesting town. Tiflis has been razed so often by numerous invaders—the last time being barely a hundred years ago, when the Persians sacked it—that few antiquities are left. The archæologist curious in Georgian antiquities comes to Kutais. Tradition associates the town with “Kites,” the home of Æthus and Medea, the destination of Jason and his Argonauts. The first authentic record in history occurs in Procopius, who refers to it in connection with the Greco-Punic wars of the sixth century. According to Grazius, it was founded by the Abkhaz emperor, Levan; but probably he merely improved an existing city. In 1666 the Turks overran Imeritia, of which Kutais is the chief town, and seized all the strongholds. They destroyed the old cathedral of the Abkhaz-Kartelian emperor, Bagrat III (980–1024); but the ruins are still fine, and its carvings and ornamentation of great interest. The carvings are very numerous, in very bold relief, in a local freestone. The prevailing form of ornament is a conventional vine, with compli-

cated tendrils. A sheaf of corn is also represented; priests' headgears and twisted scrolls are numerous. All arches have rounded tops; on one big block of stone there is a curious allegorical carving, representing very vividly two beasts of prey, possibly leopards, attacking what appears to be a Roe or a Goat. The Turks were expelled in 1770 by a Russian force under Todleben, who marched into Imeritia at the petition of the king, Solomon I.

The population of Kutais is about sixty thousand, including a large number of Greeks, Jews, and Armenians, who flourish on manganese. The deposits of pyrolusite at Chanieturi and elsewhere in the neighbourhood supply half the manganese of the world, and Kutais is the focus of the business. The true natives of the district are Imeritians, a branch of the Kartelian or Georgian family; the language is a variant of Georgian. The Imeritians more readily adapt themselves to European costumes and customs than do most Caucasian tribes. They provide, *inter alia*, most of the waiters for the hotels, from Batum to Baku and Kislovodsk. They are upstanding men, often very tall, swarthy of complexion, and fine, dignified features of a distinctly Semitic type. The bashlyk is the prevailing headdress. I noticed that in Kutais, at least in summer, it is usually worn simply as a Capucine hood, which gives the wearers, with their full, broad foreheads, arched noses, and often flowing beards, the appearance of a mediæval monk, or of a prophet straight from the Old Testament. A long and shapeless, often very tattered, cherkess completes the illusion. Like all Georgians, they have a marked preference for all black costumes, perhaps because it does not show the dirt, and it is quite a relief to see an occasional dandy, even a ragged one, in a scarlet cherkess, or in one that has once been white.

The town is pleasantly situated on the bubbling, boiling Rion, as it emerges from the mountains, where, according to tradition, Prometheus was chained. This romantic and picturesque stream can be very angry at flood-times; between my two visits, in July and June, its swollen waters, turbid from the recent rains, rose with startling suddenness, threatening the three bridges, and carried away bodily a large sawmill that stood upon its banks. It issues from the mountains at the back

of the town, which rise, tier upon tier, to the mighty Elbruz himself.

A visit to Batum, a dead port while the Black Sea is closed, was too hurried to afford much material for comment beyond the fact that I was lucky enough to hit upon a really fine day. Past experience and common observation have made me familiar with the remarkable humidity of the climate of this corner of the Black Sea. When the weather is fine, Batum is a very pleasant spot, with a luxuriant and exuberant vegetation.

The district at the back of the coast between Batum and Poti is known as Guria, a little-visited country; here I spent some days on two separate occasions in June and July. The Gurians are another portion of the Georgian race; they are tall and slim, active and graceful in their movements, and the women often very handsome. I noticed several cases of a peculiar glow, like burnished copper, in the black hair both of men and women; they are very swarthy, but a few strikingly fair types are to be seen; I saw three children with very fair skins and yellow hair, yet their parents were both exceedingly dark. The men often wear a black or dark brown shirt with a sash instead of the rather clumsy cherkess; the headdress is almost invariably the bashlyk; the papakha, or high Caucasian cap, which is invariably further east, is seldom seen in Guria; the bashlyk is not often worn as a simple Capucine hood, the Gurians preferring to twist it round the head to form a turban. There is a great art in doing this, and there are several recognised methods, while every man has his own favourite way. The poorest peasant, with a few dexterous twists, will contrive to attain a most picturesque and becoming studied *négligé*. I practised for hours under a competent teacher, and eventually succeeded in managing one method in a very amateurish manner. The bashlyk is an admirable form of headdress; when twisted on turban-fashion, as in Guria and the neighbouring districts, it is the cousin of the real turban. The Turks arrange it differently from the orthodox Gurians, having it flat and tight-fitting on the head, with the tails tied in a knot at the back, while the Gurians usually have it more or less carelessly wound, with long tails protruding at a rakish angle. It is a fine protection against the

weather, and I found it a good cure for neuralgia; in the hot weather or rain it can be worn as a simple Capucine hood. In other parts of the Caucasus it is carried untwisted, hanging down the back; a brilliant colour, scarlet in particular, is much affected by the dandies, but the average man prefers black or greenish-grey. When I saw a scarlet bashlyk thus hanging down the back of the wearer, I understood for the first time the theory and pedigree of the University hood.

Life in Guria is simple; the land is largely held by big owners, and estates run into many thousands of acres, but yield small revenues, as the natives are lazy, for which undoubtedly the heavy climate is responsible. They are orthodox, but subject to some eastern influences; in one house where I visited, the women were secluded. The Adjars of the neighbouring mountains are Gurians in blood, who have accepted Islam. Food is plain and coarse; meat is poor and rare; the staple diet is hot maize-bread, exceedingly heavy, white cheese, thin wine, and every day *chakhokhbili*, or chicken stewed in a piquant sauce. A peculiar speciality of the district is *santlis*, a spirit distilled from crushed honeycomb; it is strong and not unpleasant to drink, with a marked aroma of beeswax. The aristocracy is very proud of its ancient lineage, yet very democratic, for peasants and labourers sit down to table with the prince or big landowner. It is customary for landowners to carry revolvers, sword, and *kinjal*, or long dagger; the latter is not a mere ornament, for all Georgians have the southern temperament well developed.

Guria is a hilly country but not mountainous, the greatest altitude being about 500 ft.; it consists of a series of small anticlines of Oligocene and Upper Miocene marls and soft sandstones; the latter are impregnated with oil, which is traditionally associated with the legend of Prometheus, who gave fire to mankind. These sedimentary beds are broken by a few basaltic and trachytic dykes and intrusions. The soft marls and mud become an impassable quagmire in winter, in which horses sink up to their girths, and locomotion becomes very difficult. The valleys are devoted to maize and the vine, but tea and tobacco are cultivated by the more enterprising landowners. The hills are covered with beech and dense thickets of rhododendrons, which

must be a grand sight when in flower. There is a lot of malaria; apart from the mosquitoes, the curse of the district is *Cimex lectularius*.

My host was a typical Gurian. He owned some 20,000 acres or more, but was far from rich; his house, built entirely of wood, like almost all houses in Guria, stood on rising ground which had been cleared of forest, and commanded a splendid view of the sea and the valley of the river Notanebi, beyond which the Adjar crest rose to the snow. In the distance Batum was clearly visible, and on a clear day the mountains round Trebizond can be seen. He was one of the minority who could speak Russian, and it was pleasant to sit and smoke and sip tea in the balmy, evening air, listening to the chorus of the Frogs and howling of the Jackals. It was a very peaceful scene, and seemed far from the turmoil and distress of war. As we looked over the calm waters of the Black Sea, we tried to conjure up the hideous scenes that were being enacted at its other end. We discussed the downfall of a tottering empire that had planted itself as an exotic growth on the threshold of Europe. But that empire was a mushroom upstart; the Georgian empire had existed for centuries, when the Turk first came to challenge Christendom.

After the moist and humid climate of the hilly region of Guria, surrounded by lofty mountains, it is an abrupt change to the plains of Azerbaidjan. East of Tiflis the valley of the Kura opens out into a broad steppe, extending right to the Caspian, and in the south to the plains of northern Persia—it is, in fact, a piece of Asia, and typically Asiatic. The country is dead flat; in the clear morning air the snow-clad sierra of Daghestan is visible in the north, and the rounded heights of Karabagh in the south. Otherwise the only break in the horizon is a series of low, escarped hills, running east and west between Nukha and Evlakh, called Boz Dag, or the Grey Mountain. In every direction, as far as the eye can reach, unending plains fading away on the horizon, broken by an occasional clump of trees or mosquito tower. The soil is a fine, grey clay, from which the waves of the Caspian have receded only in quite recent times; in places there are expanses of saltings, but where irrigation has been carried out by the natives, the fertile

soil gives abundant crops of vine and rice, and cotton has recently been tried with some success. The inhabitants are almost exclusively Azerbaidjan Turkis, usually referred to as Tartars; their language is of the same group as Ottoman Turkish, but little affected by Arabic influence, though the Persian effect is greater; its simple and straightforward structure has made it the *lingua franca* of the Eastern Caucasus. These Tartars are industrious, patient, grave, and polite, and are generally respected.

My destination was Geok Tapa, the estate of the only Christian landowner in the neighbourhood; the place has been described by me in the 'Entomologist's Record,' xxv, pp. 12 and 37, 1913. My host, Alexander Borisovich Shelkovnikov, has devoted the past twenty years or more to collecting and observing, with a view to monographing the biology of his district of Aresh. He has accumulated an enormous quantity of material, and is constantly pouring fresh matter into the Caucasus Museum at Tiflis; and there is hardly a museum in Europe where labels, "Dist. Aresh. Geok Tapa. Shelkovnikov," are not familiar. The flora and some branches of Entomology have received special attention. The former is illustrated by a *hortus siccus*, which is now in the Tiflis Museum, where also is his collection of Coleoptera; the Orthoptera have been partially worked by myself, and almost every group has received serious attention from various specialists. Yet the fauna is so rich that new things are constantly turning up, even among the better-worked branches. Alexander Borisovich himself is constantly collecting and despatching large masses of material, and with true Russian and eastern hospitality, welcomes all naturalists to his hospitable roof. On this visit I was lucky enough to find my old friend, V. Bianki, with his three sons; this is sufficient guarantee for the Ornithology of Geok Tapa.

In the garden and park alone the fauna is rich. The common birds are the Bee-eater (*Merops apiaster*, L.); (*M. persicus* occurs, but I did not see it); Hoopoe, Golden Oriole, Krynick's Jay, Swallow, House-Martin, Roller, Kestrel, Turtle-Dove, Green Woodpecker (*Gecinus viridis saundersi*, Tacz.), House-Sparrow, the Caucasian race with paler cheeks, (*Passer domesticus caucasicus*, Bogd.; in Russian, *Vorobéi*). The Kingfisher

(*zimorodok*) nests in the banks of a little irrigating canal a few yards from the house. But the *specialité de la maison* is the *túrach*, or Francolin (*Francolinus orientalis caucasicus*, But.), a race peculiar to these plains. His chuckling whistle resounded all day in the fields round the house. I occasionally flushed one on the steppe. It rises like a Partridge, but, being big and rather heavy on the wing, is of more importance to the cook than to the sportsman. The flesh is white and tender, recalling that of the Guinea-Fowl, but not so dry.

Over the steppes, birds of prey are common. Besides the Kestrels, which are very numerous, *Aquila melanæetus*, L. (= *imperialis*, Bogd.) is quite common. The Black Kite (*kórshun*) (*Milvus ater*, Bogd.) flew over us on one occasion. I saw one Harrier (*lun*), which I think was *Circus cyaneus*, L., which occurs throughout the Caucasus up to an altitude of 9000 ft. But on the desert, where there is no irrigation, the few spring torrents rapidly dry up, and from the early summer the ground is a real desert. In the distance it has a bluish-grey colour, due to the quantities of isolated stalks of the glaucous grass of the steppe, *Artemisia maritima*. At the beginning of July this plant is already burnt dry. The tops are often crowded with what looks at first like a mass of white flowers, but is really a quantity of a small Snail (*Hedix derbende*) bleached by the sun. There is little other vegetation. Thanks to its long roots, the delicate *Alhagi camelorum* can exist at some distance from the canals, and retains its freshness even into the autumn. *Prosopis stephaniana* has fluffy, pinkish flowers in July; in September its pods burst and expose a crimson interior, lending a pleasing touch of colour to the scene. The long, sprawling stalks of *Capparis spinosa* are dotted over the steppe and keep their green colour into the autumn. In places there are patches of the alkaline *Salsola soda* and *S. kalia*, whose juicy shoots offer food and refreshment to a number of interesting Orthoptera.

The desert is alive with insects in July. The steppe Orthoptera, a noisy Cicada, an occasional *Palpares* and *Ascalaphus*, and a number of enterprising Odonata are enough to keep the collector busy for a long time; but in Ornithology there is little to do. As V. Bianki remarked, after we had walked for some hours, it is almost lifeless. *Galerida cristata*

is the only small bird. An occasional Hawk, Eagle, or Vulture flies overhead, and on one occasion the Little Bustard (*strépet*), *Tetrax tetrax*, passed over.

Through the hills of Boz Dagħ there is a gorge called Oghrudzhe—an ideal spot for a picnic. The inner man was thoroughly attended to, for our conveyance over the desert—a *furğon*, or heavy waggon drawn by oxen—was laden with provisions and luggage enough to satisfy a sybarite. A mass of freshly-cut grass, green and juicy, afforded fodder for oxen and cushion for man, when duly covered with Persian rugs. A black lamb sat patiently in the waggon, and was caressed by us on the road and eaten on arrival, which seemed rather cannibalistic; he promptly fulfilled his destiny, was despatched and skinned by the Tartar servants, and carefully carved by our host. A juniper and a pistacio gave fuel for a blazing fire, over the glowing ashes of which we roasted on skewers the most tasty shashlyk from our comrade the lamb, tomatoes, and *bakladjan*, or aubergine—inevitable accompaniment of an Eastern meal. Wine, both white and red, a samovar, and even vodka had not been forgotten. The place is absolutely waterless, so an abundant supply was brought in huge jars of classical design.

This epicurean feast did not interfere with field-work. We heard, but did not see, the Rock Partridge (*Caccabis chukar*, Gray), a very characteristic member of the avifauna. On a crest of the hills eleven Vultures sat in state, launching themselves with dignity into the air as we approached. There were no less than three species among them, all of which occur throughout the Caucasus: *Neophron perchopterus*, L., easily recognised from below by the sharp contrasts of black and white; *Gyps fulvus*, Gm. (*bielogolovy sip*), which appears dull grey; and *Vultur monachus*, L. (*chorny grif*), which seems almost black. The only other bird of prey noticed was *Circætus gallicus*, Gm., which the Russians call the Snake-eating Eagle (*oriol zmeyad*). The sharply-bent angle of the wings is very characteristic. We observed a few Goldfinches (*Carduelis carduelis brevirostris*, Zarudny), and under a thorny shrub found the nest, with eggs, of *Aëdon familiaris*, Men. This was on June 28th–July 11th, which seems very late, especially in this hot climate, for fresh

eggs. This species occurs throughout the Eastern Transcaucasus and the shores of the Caspian. A young Roller was found in a hole, with the first feathers just beginning to appear. It is odd that such brilliantly-coloured birds as the Roller and Bee-eater should nest in holes. I noticed a Bee-eater fly direct into a hole to his nest in a hole in a mud-bank by the roadside.

The hills of Boz Dagħ attain no great altitude, but their wildness and the desolation of the scene give the impression of true mountain scenery; vertical cliffs, carved boldly into ravines and gorges almost barren of vegetation, have the effect of a wild and desolate mountain-range in miniature. In the gorge itself there is a tolerably rich flora. There are three species of Juniper, *Juniperus oxycedrus*, *J. fœtidissima*, and *J. isophyllus*; other characteristic plants are *Pistacia mutica*, *Ephœdra procera*, *Rhus cotinus*, *Prunus microcarpus*, *Paliurus australis*, and some of our old acquaintances from the steppe occur here, too, as *Prosopis stephaniana*, *Capparis spinosa*, which develops an agreeable smell in the evening, *Alhagi camelorum* and *Artemisia maritima*; the feathery, mauve flowers of the Tamarisk are much in evidence; *Reaumuria* is a pretty little mauve flower, with glaucous stem and leaves. The structure of the hills is clearly visible from the crest of the highest escarpment, which is only about 200 metres above the sea. There is a series of undulating escarpments, striking about north-east and south-west, with a gentle dip, culminating in the range of hills in question, the well-named Boz Dagħ, or Grey Mountain.

The dry, grey rocks look like a good home for reptiles, but they are not numerous; I saw one *Agama caucasica*, Eichw., a good-sized, grey Lizard that frequents these hills. There are a dozen species of Snake known in the neighbourhood, but they do not seem to be very much in evidence. Under the balcony of the house was captured a *Tarbophis iberæ* (= *vivax*), a typical Caucasian snake; his venomous properties are not definitely known, but he is regarded with suspicion; he certainly has a poisonous appearance; he is fond of getting into the roofs of houses to hunt for small birds. The Tartars call him *Dam ilam*. The only undoubtedly venomous snake in the Aresh district is the ponderous *Vipera lebetina*, L. This is by no means rare in the dry steppe, where it feeds on Gerbilles, Hares, and small

birds ; it attains a length of 1420 mm. and a diameter of 60 mm. Its bite is usually followed by fatal consequences ; cattle are often bitten by these vipers and usually die, but the Tartars sometimes succeed in averting fatal results by applying promptly a wet cup above the wound. Owing to its heavy build, *V. lebetina* is a sluggish creature ; if held firmly by the tail at arm's length, it is unable to raise its heavy body, and so may be picked up boldly and dropped into a bag or collecting-box.

Several Lizards occur, as *Ophiosaurus apus*, Pall., *Lacerta viridis*, L., var. *strigata*, Eichw., *L. saxicola* var. *gracilis*, Mich., *Ophiops elegans*, Menk. Tortoises are numerous ; the commonest is the ordinary Land-tortoise of the Caucasus, *Testudo ibera*, Pall. *Clemmys caspica*, Gm. is very common along the banks of the canals, but *Emys orbicularis*, L., is rarer ; the young Tortoises are attacked by Storks and Vultures.

I saw few mammals ; a dead Weasel on the road and an occasional Hare, *Lepus cyrensis*, Sat., on the steppe, complete my list of wild mammals observed in the district, but several interesting forms occur. The Striped Hyæna is a great rarity in the Aresh district, and the Gazelle (Russian and Tartan, *ajeiran* ; *Gazella subgutturosa*, Guld.) has retired further to the east and south. Forms peculiar to the Kuro-Araksin valley, according to Satunin, are as follows : *Hemiechinus calligoni* var. *brachyotis*, Sat., *Cerbillus hurricanæ*, Jerd., *Mus muiculus* var. *tartaricus*, Sat., *Nesocricetus brandti*, Nanr., *Alactaga williamsi* var. *Schmidti*, Sat., and *A. elater* var. *caucasica*, Nanr.

On June 16th-July 31st I very unwillingly left my genial host for Baku, where I had no time for Natural History. There I sweltered for two days. There is a magnificent municipal bathing-place, but the sight of interference-colours on the surface of the water, due to a film of oil and various objectionable objects from the town, were very discouraging. So I took a boat and rowed right out to sea, and had a glorious swim, comforting myself with the thought that here at least was a sea in which *Navis submarina* is not a member of the fauna. As the temperature was over 100° F. in the shade it was a good place to get away from, especially as there was a moist, hot wind blowing up from the south ; it seems curious that though the hills round Baku are bare and treeless, the climate is quite

moist, and the heat consequently disagreeable. In the desert of Boz, where there is no humidity, the scorching heat of a blazing noonday sun, in spite of the total absence of shade, does not prevent the air from being crisp and even invigorating. An exceedingly high temperature produces no disagreeable effect, providing the actual skin is not scorched, which may cause great pain. I was able to undergo considerable and prolonged exertion without the slightest discomfort, but the difference was very marked on returning home; directly the canal-zone was reached, with vegetation, though the temperature was no higher, considerable discomfort was caused, and a profuse perspiration broke out instantly.

The journey along the banks of the Caspian as far as Petrovsk is not without charm and interest. The scorching heat of the grey terraces between the mountains and the sea, infested by *Anopheles* and *Culex*, make it a bad place to live in; officials and their families at the stations along the line lay gasping in the shade of a hut or umbrella, unable to undertake the slightest exertion before the evening. And yet the conscientious Tartars strictly carry out their law, and during the fast of Ramazan, not a glass of water nor a cigarette touches their lips so long as the sun is above the horizon. For miles no trees, grey hills, a flat, grey terrace, *Alhagi*, *Salsola*, *Artemisia*, and the unceasing shrill of the Cicadas. The famous wall of Derbend is clearly seen from the train; it runs from the ancient fort on top of the hill down to the sea, embracing the town within its two arms. The walls are about eight or nine feet thick; the composition is stones and brick, faced with blocks of smooth stone about two feet square. The irresistible Peter the Great visited Derbend, coming by sea from Astrakhan, and suggested carrying this wall from the Caspian to the Black Sea, to shut off the raids of the wild tribes of the Caucasus, but the undertaking was too vast even for his colossal abilities. Derbend is mainly a Tartar town, but there are a number of Jews and Armenians, and a sprinkling of the wild highlanders from Daghestan may usually be seen stalking down the streets. The country here assumes a greener aspect, and is intensely cultivated by the patient Tartars, who are fine gardeners, and eke out a permanent sustenance from a tiny plot of land. Sturgeon-fishing is the main local industry.

At Petrovsk the line leaves the sea, turning abruptly to the west; this town owes its importance to the fact that it is the most northerly Caspian port which does not freeze in winter.

The early morning air presents a splendid panorama to the traveller by rail as he approaches Mineralnya Vody from the east; the jagged snow clad crest extends right across the skyline, like the Pyrenees as seen from Pau, but more than half as high again. The mighty Elbruz himself, standing head and shoulders over his neighbours, reaches a height of almost 19,000 ft.; the snow on his flanks is spotless and smooth, and his profile, seen from the train, shows up clearly his twin peaks and the concave flanks. Mineralnya Vody is a station, a junction, and nothing else; most travellers associate it with a change of trains, a meal in the open, and illustrated post-cards—it is, in fact, the threshold of the Caucasus. Its *raison d'être* is the fact that it is the junction for the Group—that is to say, the series of watering-places which nestle in an outlier of the mountain range. These watering-places are famous all over Russia, and they deserve to be known far over her frontiers. Kislovodsk ("Sour Waters") is a charming place, and is certainly the queen of Russian resorts; it is well planned and well built, with excellent restaurants, theatres, music, and shops. The place where the health-seekers drink the waters is a fine colonnade, where all sorts and conditions walk about, sucking chalybeate waters through a bent glass tube, just as they do at Spa. The chief town of the Group is Piatigorsk, the Five Mountains, with memories of Lermotoff; another is Essentuki, whose table-waters are drunk all over Russia; less known are Zheleznovodsk ("Iron Waters"), a charming little spot, and Beshtau, which is the Tartar form of Piatigorsk. After thirty-six hours in the train from Moscow, the weary traveller is glad to get out and stretch his legs at Mineralnya Vody, and takes his breakfast in the cool morning air; but after an hour or two, he is equally glad to leave it, whether it be for the shady towns of the Group nestling in their mountain valleys, or for a few more hot hours in the train, to Vladikavkaz and the Georgian Road.

NOTES AND QUERIES.

MAMMALIA.

Present Status of the Squirrel in Britain.—Could any of the readers of the 'Zoologist' give me information regarding the present state of the Squirrel population in different parts of the country? I should like to know whether it is stationary, on the decrease, or on the increase, and if the latter, when was the increase first noticeable? I should also be glad to know if any signs of disease have been observed. Here (Shropshire) Squirrels are now plentiful, after being scarce for several years.—(MISS) FRANCES PITT (The Albynes, Bridgnorth).

Inherited Variation in Cat.—I wish to bring to your notice a somewhat curious instance of variation in a domestic Cat which I observed in Sussex this month. The cat in question, which was a female of the familiar tabby-and-white variety, had an extra toe placed on the inside of each fore-foot, so that it had five toes on each of these feet as well as the usual claw half-way between the toes and wrist, or if this is counted, six toes. The extra toe on each foot was separate, and joined to the rest of the foot by a piece of skin, and had a remarkable resemblance to the thumb of a *Platyrrhine* Monkey, as it was turned outwards, but was, naturally, not opposable. Each of the extra toes had a perfectly developed retractile claw. The owners of the cat tell me that it has had kittens which also exhibit this peculiarity, but such kittens are also always exactly like the mother in colour and markings. Kittens of any other colour or entirely "tabby" are without the variation in the fore-feet.—N. O. R. SERJEANT (Great Wakering, Essex).

AVES.

Black-bellied Sand Grouse (*Pterocles arenarius*, L.) in Malta.—A female specimen of this species was taken at Gozo in the limits of Nadur on April 11th. It was sent to my brother, who stuffed it while I was out in the country. This is the second specimen taken in these islands, and so it will probably be the fourth to be included in the list of Italian birds. In Giglioli's list of 1907 only two individuals are mentioned, and these were taken in Nice on December 2nd and 16th, 1896, the same being also reported in Count Arrigoni's list of 1913. The first specimen taken in these islands is the one mentioned in my 'List of the Birds of Malta' of 1915; it is a male in full plumage. According to the data kindly furnished to me

by my friend Dr. Giovanni Gulia, this specimen was taken at Gozo in the limits of Kercem. Dr. Gulia examined it in the flesh before it was sent for stuffing to the late Mr. Micallef of Birchircara by its owner, Mr. A. Saliba, of Gozo.—G. DESPOTT (Malta).

White Storks (*Ciconia alba*, Bechst.) in Malta.—Some White Storks passed over the island during the morning of May 10th, two of which were shot in the vicinity of Birzebbuggia. My brothers, who were at the time in that locality, reported to me the occurrence, saying that they saw the birds coming over from the south-west, and that one of the birds, which they had ample time to examine in the flesh, was an immature specimen. The White Stork being a very rare straggler to these islands, I think its occurrence is quite worth recording. Schembri, in his 'Cat. Orn. del Gruppo di Malta,' says that the species is rather rare, and that he saw a specimen for the first time in Malta in April, 1840. Wright, in his 'List of the Birds of Malta,' says that the species is rare and does not occur annually; he also mentions three specimens, one of which was shot on March 22nd, 1857, and the other two on May 4th and 7th, 1863; these last two, he says, were sent to him by Capt. Carr, R.A. I have never seen the species in Malta, either alive or in the flesh; I know, however, of two stuffed specimens, one of which was in the possession of Mr. L. Naudi, Pharmaceutical Chemist at Rabato, the other is in the Malta Natural History Museum, though this bears no data; from the style of its mounting, I am inclined to think it is one of the specimens which were in the collection of Wright.—G. DESPOTT (Malta).

Notes on the Laying of the Cuckoo.—An interesting occurrence of the laying of the Cuckoo, and one that without the complete facts would have further supported Mr. E. P. Butterfield's instances of the Cuckoo laying in an empty nest ('Zool.,' p. 153) recently came under my observation. Whilst I was staying at a farm at Turvey, in Bedfordshire, on May 7th last, some of the children of the farm-hands robbed a nest of a Hedge-Sparrow of its three eggs at 2 p.m. The laying of these had taken place on the consecutive mornings previously. At 6 p.m. these children had the curiosity to visit the nest again, and then found the egg of a Cuckoo had subsequently been deposited in the empty nest. The conclusions I draw are that the Cuckoo had located this nest when it contained eggs, and on bringing its own to deposit therein had practically no alternative but to leave it there, whether to be eventually removed it is now impossible to say. Instances such as this may be frequent, and do not affect the point of my query (see

'Zoologist,' p. 317, 1915) as to whether the Cuckoo ever deposits its egg in a nest before the first egg of the foster-parents' clutch has actually been laid therein.—J. STEELE ELLIOTT.

Gulls in Bedfordshire.—One would think this county too remote from the sea for very frequent observations on any of the Gull family, but yet they occur by no means uncommonly, and evidently in increasing numbers; hence I desire to put on record their present-day status in this locality. The Great Black-backed Gull (*Larus marinus*) is certainly a rarity, and I think it has been almost invariably obtained in immature plumage; these birds are probably always storm-driven visitors. Four instances are recorded in the 'Victorian History of Bedfordshire' (p. 134), and another was killed at Wootton, February 27th, 1905. The Lesser Black-backed Gull (*L. fuscus*) and Herring Gull (*L. argentatus*) are commonly observed, more particularly during their migratory flights in April and May and again in September and October. They are then generally seen in small parties. There is evidently a well-used flight-line running S.W. to N.E. across the county. The two species seem to occur in about equal numbers. The Kittiwake (*Rissa tridactyla*) only occurs when forced inland by stress of stormy weather, and so is practically restricted to the winter months. Those seen are usually solitary birds, and are frequently in a very exhausted condition. The Common Gull (*Larus canus*) was once considered one of the rarer Gulls visiting this county, and the record was more particularly of solitary birds occurring during the winter months. But in February, 1912, several hundreds appeared together at Newnham, and remained for several days ('Zool.', 1912, p. 232), and another considerable migration is recorded under the next species. The Black-headed Gull (*Larus ridibundus*) has always been a very frequent visitor both in winter and on migration, so much so that it was formerly known as the "Cordy Mordy," although no doubt other Gulls came under the same name. In the spring small flocks remain for a week or more at a time, and often vary in number from day to day. By far the largest flock that I have ever seen or heard of occurred during the present Spring, along with large numbers of Common Gulls. Several Black-headed Gulls were to be seen at Newnham from March 13th to 17th, and on March 15th and following day about 200 Gulls were reported to me on the fields alongside the River Ivel at Blunham, some seven miles distant. On March 26th my son and I counted 275 Gulls together on the River Ouse meadows at Fenlake, and there were probably over 300 in all scattered about the meadows between there

and the village of Goldington. About three-fourths of this number were Black-headed Gulls and the remainder Common Gulls. There were many of both species in full breeding-plumage. I am informed numbers of Gulls were seen in this latter locality a week previously. On April 2nd, my son tells me, only about a dozen were to be seen, but a few have been observed since this date and up to April 18th, though possibly all were more recent arrivals.—J. STEELE ELLIOTT.

Breeding-Habits of the Linnet.—How different species of birds may have different habits in their distributional range is well illustrated in the paper on 'Breeding Birds of Malta,' by Mr. Despott, in the 'Zoologist' (p. 171). In Malta, he remarks, under the head of Linnet (*Linota cannabina*, Linn.), that both male and female take part in the construction of nests. In this district I have ample proof that only the female takes part in the building of the nest. The male always accompanies the female when the latter is searching for building material, and remains near the nest uttering short snatches of song whilst the female is engaged in building operations. Indeed, during nearly the whole of the nesting-period the male and female are always together, except when the female is sitting and has young nestlings. From the date of nesting-period given by Mr. Despott, I infer that this species is single-brooded in Malta. In this district a good many are certainly double-brooded, the breeding-period extending to late July and August.—E. P. BUTTERFIELD (Wilsden, Bradford).

A Much-used Nest.—The other day I came across an old Blackbird's nest built against the bole of a tree in Bingley Wood, the bottom part of which, it was evident, had been utilised as a winter resort of the Wren, whilst on the top of the whole structure, which had been much disarranged on account of the burrowing of the Wrens, the nest of a Chaffinch was built.—E. P. BUTTERFIELD.

A Closely-sitting Missel Thrush.—The other day I found the nest of a Missel Thrush in the wood a short distance from this place, built on the lateral branch of an oak near its extremity, and on trying to flush the bird from its nest I had the greatest difficulty in doing so. I came at last to think the bird was dead, owing to the late cold weather we had. A friend was with me at the time, and he was determined to settle the matter. He fetched a long stick and lifted the parent's hind-quarters some little distance from the nest; still it would not leave the nest, and before it did so he had to strike the

branch quite violently. Such behaviour in this species is not usual.
E. P. BUTTERFIELD.

Further Notes on Newton's Statements on Birds.—I am somewhat interested in Mr. E. P. Butterfield's remarks ('Zool.,' 1916, p. 196). There can be no doubt of quite considerable differences between the observations of field-naturalists made during recent years and those made even a very few years ago. And, with equal certainty, the changes observed, as regards distribution and dispersal, become more and more marked in the course of one man's life, and of the time he may have devoted to the observing of such phenomena. But whilst these very marked differences scarcely warrant critical remarks regarding the accuracy of previous recorders, they often do add very considerably to the current interest of the studies in Ornithology, as they also do in most studies of other branches of natural history inquiry.

Distribution and dispersal, extension or compression, increase or decrease, development or contraction are all subjects—it is almost needless to insist—which are intimately connected; and most surely have a distinct bearing as a whole upon other phenomena, such as migration, food-supplies, changes in temperature, character of the seasons year by year, and even in the habits of species. These act and interact in their courses, and become more and more differentiated the longer the time of careful records is extended. But the results regarding the past and present periods in the life-history of a species must be limited to absolute knowledge and records in the past, and the ability and continuous day-by-day, month-by-month, year-by-year observing and recording in the present, of students of these subjects. Yet the whole lifetime of one observer, however capable and however devoted, is quite insufficient to enable him to arrive at finality. To attempt prophesying a future expansion or restriction may require the whole lifetime of a whole generation of accurate recorders—even in some single quite limited area—at least as regards many or most of our very commonest species. And if the larger areas be considered, how vastly greater must be the numbers of accurate observers and recorders required to arrive at any finality! These recorders must be situated in all parts of the world, occupying every conceivable kind of locality, and their records kept with strictest continuity. Even then perfection could scarcely be arrived at, or prophecy ever approach it. And, after all, these are the very points which add to the interest of study—something gained, but much

more accuracy still required. It is therefore quite of interest to compare such accounts as those given by Mr. Butterfield from one locality or district with those gathered together for a wider area, or with those from another locality or district. Thus, in the case of the Stonechat, it is a bird which we in Scotland may well designate "not uncommon but locally dispersed, varying greatly in numbers east and west, north and south, and nowhere what could be called *very* abundant save in a few favoured localities," in, say, A.D. 1900. (But what it may be, say, ten, twenty, thirty or more years later, it is not so easy to say!) Changes such as those described by Newton in the numbers of the Redshank and those spoken of by Mr. Butterfield in Yorkshire are no doubt both equally correct. Indeed, we know of quite a number of exactly similar facts as regards this bird which have come under our own personal observation. For instance, the almost complete disappearance of Redshanks from quite an extensive district which in my own remembrance and record was thickly populated by nesting pairs prior to 1863, and the subsequent occupation of the same extensive area by the Greenshank, which first began to take up nesting places there only a few years later—there were none certainly there prior to 1865 or thereby—is one remarkable illustration. And on my own property here the Redshanks nest to the extent, in some seasons, of at least four or five pairs, where none had ever been present in my whole school-boy nesting days, though the ground was perfectly suitable to all appearances, and though they bred commonly a few miles off. As regards the dispersal of the Greenshank, the tendency hitherto has been—within my own knowledge—to move from north to south and north-west to south-east, and, after an interval, from west to east. These and other similar dispersals are the points of interest so far as my own continuous observations have enabled me to judge, assisted by the records of other observers in the past. It may yet prove of greater interest when (if ever) the endeavours may be crowned by a very much longer series of facts accumulated from present times onward; and when *all* have been compared, tabulated, and analysed, some naturalist of the future or some far-seeing historian of to-day may be able to arrive at other abler conclusions, opening up and explaining much of the past, and throwing a certain amount of prophetic light upon the future. Some of the mysteries may be cleared up by long-continued observations and careful records of many lifetimes of generations of observers who are able to pay attention to all the conditions involved, such as those of degrees of temperature and

physical changes ; latitude and longitude of areas previously occupied as compared with to-day and " to-morrow " ; elevation, aspects ; exposures to morning, noon, and evening sunshine or shade ; and all the influences brought to bear upon plant and insect life. It may be acknowledged that such a statement as that quoted by Mr. Butterfield from ' Newton's Dictionary ' (p. 1052) and Mr. Butterfield's own local observations in Yorkshire are equally correct. But even if so, the two items are apart, Newton's being " broadly stated " for all England, and Mr. Butterfield's being, as he himself tells us, confined to " mid North-West Yorkshire," and therefore of local application only and due to *other factors besides latitude and longitude*. The complete ' Dictionary ' would have been extended to many thousands of pages had room been given to expand into details of local records and their accompanying phenomena.—J. A. HARVIE BROWN.

Black Redstart Nesting near Windsor.—I am writing (somewhat late in the day) to place on record the discovery of a Black Redstart's nest near Windsor, Bucks., in 1915. The nest was found by someone else, who did not study birds but only collected eggs, and hence he did not observe the birds. There were six eggs in the nest. He took three, giving one to me. The next day I went to the nest. It was in a tin in a rubbish-heap in the middle of a field. The nest was made very roughly of hay, lined with a few feathers. On arriving I found a Toad had taken possession of the nest, and all the remaining eggs were broken. Both birds were near by, and I am absolutely certain of their identity. I have looked out for them this year, but they have not arrived. The finder's name was G. N. Collins, and the date of discovery was June 3rd, 1915.—N. ORDE POWLETT.

CRUSTACEA.

Educability of *Galathea strigosa*.—(1) On November 20th a fine large specimen of *Galathea strigosa*, from Weymouth, was placed in an aquarium. During its life in the tank, which lasted exactly a hundred days, it ate pieces of Plaice, Goby, *Portunus marmoreus*, *Eupagurus pubescens*, Shrimp, *Æsop* Prawn, Mussel, and beef. The stages in its progress towards tameness were very interesting. Until the eleventh day of captivity it refused to eat anything, and clung motionless upside-down to the roof of a shallow hole in the rocks, showing extreme nervousness and crouching against the rock on the approach of the feeding-forceps, or of one of the two Common Spider-Crabs which shared its tank, and even when food was dropped close to its head. It used its long chelæ with a thrusting, rarely

with a snapping, action to drive back the Spider-Crabs or forceps. On the eleventh day, after hesitating for several minutes, it slowly and cautiously conveyed to its mouth some pieces of mussel which had been gently placed in its chelæ. It was not until the forty-first day that it had become tame enough to reach forward with its chelæ to take mussel from the forceps. On the forty-fourth day it not only reached eagerly forward for the food, but came partly out of its hole to take it; and it began to eat without allowing a few minutes to elapse, which it had never done before. Its fearlessness of the forceps, and its eagerness to take food from them, became more and more marked until its death, but it would never endure a touch, particularly on the hinder part of its body. The *Galathea* would remain for several days or weeks in its hole, then remove to the opposite corner of the tank, and afterwards move back again. It never seemed to conquer its fear of the Spider-Crabs. (2) Another specimen was placed in the same tank on January 13th. Its behaviour was essentially similar to that of the first one; but, although it gradually became less and less afraid of the forceps, it had not become confident enough to reach forward for food by the thirty-sixth day, when it died. Both animals died in the early stages of casting their exoskeletons.—H. N. MILLIGAN.

Nereis fucata Eaten by Hermit-Crab.—It is well known that the worm *Nereis fucata* is often to be found in the shell inhabited by a Common Hermit-Crab (*Eupagurus bernhardus*), and that the worm will put out its head in order to snatch pieces of food from the very jaws of the crustacean. I wished to ascertain whether a Hermit-Crab would be as tolerant of a strange *Nereis fucata* if I tried to introduce the worm into its shell. I broke open a Whelk shell in which a Hermit-Crab had recently died. The worm retreated from whorl to whorl as each was broken away, and once it made a surprisingly vigorous stab at my fingers with its mandibles. When the worm was placed against the shell of a Hermit-Crab, the crustacean at once seized and began to eat it; and a Hairy Hermit-Crab (*Eupagurus pubescens*) also attacked the annelid. The worm, however, wriggled from the grasp of the Hermit-Crabs; thrust its head into the bed of (very tiny) pebbles; and then made its retreat beneath the pebbles in an eel-like fashion, the slight heavings of the surface marking its comparatively rapid progress beneath. I do not know what became of it afterwards.—H. N. MILLIGAN.

NOTICES OF NEW BOOKS, Etc.

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THE May number of 'British Birds' concludes the volume of which we noticed the opening number last year. In the July number Miss A. C. Jackson has a paper on "The Moults and Sequences of Plumage in the British Ducks," in which she records a spring moult in the females, involving not only a change of the body-feathers, but a new growth of "nesting down" beneath them. Mr. G. T. Atchison describes and illustrates with photographs nests of the Lapwing containing five eggs. In the August number Mr. J. H. Gurney and Miss E. L. Turner describe the nesting of a Long-eared Owl in Norfolk on the ground, with particularly fine photographs contributed by this lady. Miss Haviland records photographically the half-diving of a Black-headed Gull when feeding, an act many of us must have witnessed both with this species and the Herring Gull; and on the next page there is a photograph of a nest of the Common Tern, taken on Gardiner's Island, off Long Island, U.S.A., with no less than ten eggs. Another with six is recorded, so that in this large colony of about 1000 pairs the birds show some slight inclination to "pool" their eggs like common Fowls. The note is by Mr. H. Massey. Miss Haviland opens the September number with a paper on the nesting of the Asiatic Golden Plover, illustrated by photographs; the young of this species she finds much brighter in colour than those of the western. A most interesting record is that of Mr. A. H. Mathew of a flight of about a hundred Alpine Swifts seen in Kent on July 15th, 1915; small numbers were also seen on the 22nd and on August 3rd. A curious thing is that in two cases it appeared probable that these birds settled on the ground. Mr. C. E. Milburn records the killing of some nestling Meadow-Pipits by a Cuckoo. A most regrettable record is the killing of a pair of the magnificent Caspian Tern at Jury's Gap in Kent; people who cannot recognise and spare conspicuous birds like this ought not to be allowed out with a gun. In the October part we find a record, illustrated by a good drawing, of a rare bird seen and not killed, an Eastern Black-eared Wheatear, observed and sketched in Yorkshire by Mr. W. S. Medlicott. Mr. W. J. Williams records the breeding of the Black-necked Grebe on one of the western lakes in Ireland, as evidenced by the capture of a young one in the "flapper" stage,

which was sent to him. In the November number Mr. F. W. Smalley takes up the subject of the moults in British Ducks, started by Miss C. Jackson, with both critical and confirmatory remarks on her paper. Mr. E. B. Dunlop contributes notes on the Great Northern Diver's nesting-habits in Canada, illustrated by photographs which are unfortunately not very clear, except that showing the nest and eggs. Mr. Witherby commences a series of papers on "The Moults of the British Passeres." This is continued in the December number, in which also Miss Haviland discusses the Grey Plover in its haunts on the Yenesei. Mr. W. J. Ashford records the visit, for six years in succession, of a pair of Black Redstarts to the parish church at Blandford, Dorset, where they spend the late autumn and early spring, the male coming several days before the female. The January number is largely occupied by short notes on rare birds on the British list, among which the Moustached and Olivaceous Warblers are illustrated by photographs of British specimens. In that for February Mr. Witherby continues his notes on the plumage of the Passeres, Miss Haviland notes and illustrates the habits of the Lapland Bunting on the Yenesei, and Mr. Witherby reports the progress in 1915 of the "British Birds" bird-marking scheme. The subject of the recovery of marked birds also receives attention in the March number, wherein also Miss Turner discusses the ways of Coots and Moorhens; a photograph of the latter displaying, though not too clear, is very interesting. This is part of a series on "Wait and See" Photography, which runs through several numbers. It figures also in the April issue, the most interesting record in which number is one among some Manx ornithological notes by Mr. P. G. Ralfe, on the breeding of the Chough in a ruined mine-building, a photograph of the site being given. Mr. C. J. Carroll notes the breeding of more than sixty pairs of Siskins in South Tipperary. The May number, as the last of the volume, contains, of course, the index, and has also instalments of Miss Turner's photographs and notes, and Mr. Witherby's discussion on the Moults of British Passeres. Miss Turner's description of the amicable social play of male Sheldrakes whose mates are sitting is well worth reading, as is also the short note by the Duchess of Bedford on a male Fire-crest seen in Bedfordshire, apparently displaying to a hen Gold-crest.

EDITORIAL NOTE.—For the benefit of new readers we mention here that the daggers (†) in Mr. Gurney's paper indicate that the specimens have been inspected by him. [See 'Zool.', 1915, p. 125.]

